

Federal Interagency Committee on Indoor Air Quality (CIAQ) Meeting Minutes

These are the minutes of the quarterly meeting of the Federal Interagency Committee on Indoor Air Quality (CIAQ), held Wednesday, October 22nd, 2003, from 1:00 to 3:45 pm. These minutes are in four parts: (1) Agenda and Introductions; (2) Updates by member Departments and agencies; (3) Presentation; and (4) list of attendees (26). Also, items 2.3.4 and 2.6.7 include requests for information or assistance.

1-Welcome, Agenda and Introductions. EPA Co-Chair, Tom Kelly, Director of EPA's Indoor Environments Division (IED), welcomed everyone and those present introduced themselves.

~ AGENDA ~

Welcome and Introductions: EPA Co-Chair, Tom Kelly

IAQ Updates from CIAQ Member Departments and Agencies

- 1 National Institute of Standards & Technology (NIST), Cynthia Howard Reed
- 2 Department of Housing & Urban Development (HUD), Ellen Taylor
- 3 Consumer Product Safety Commission (CPSC), Treye Thomas
- 4 Department of Energy (DOE), Terry Logee
- 5 Department of the Navy (DOD), Trinh Do and Joy Erdman
- 6 Environmental Protection Agency (EPA), Tom Kelly
- 7 CIAQ Administration, Phil Jalbert

Presentation and Discussion. *EPA's ORD-IAQ Research Program*, by Jim Jetter, Air Pollution Prevention and Control Division, National Risk Management Research Laboratory, RTP (NC).

Directions. This meeting is in EPA's 1st floor conference room in the Communications Workers of America (CWA) building (pink granite) at 501 3rd Street, NW, Washington, DC 20001. If taking Metro-Rail, exit at the Red Line-Judiciary Square station in the direction of 4th Street*. Go to E Street, turn right and go 1 block to 3rd Street. There's a Jack's Deli on the ground floor/corner of the CWA building. Guards at the lobby desk will ask for a picture ID and have you sign in. Look for signs indicating the meeting. Please visit www.epa.gov/iaq/ciaq/index.html for meeting minutes and other CIAQ information, or contact Phil Jalbert (202.564.9431, jalbert.philip@epa.gov).

*Not in the direction of the National Police Memorial/National Building Museum.

2-Updates from CIAQ Member Departments and Agencies

2.1 NIST - National Institute of Standards & Technology, by Cynthia Howard Reed. NIST is hours away from releasing version 2.1 of CONTAM. The primary changes include the ability to import exterior pressure and contaminant data from an exterior plume (or similar) model and improvements in the ability to model HVAC controls. It is available for download from the NIST Multi-zone Modeling website at <http://www.bfrl.nist.gov/IAQanalysis/default.htm>.

BASE Ventilation Data: NIST is continuing to analyze the ventilation data collected as part of the EPA BASE study of 100 office buildings. We are focusing on outdoor air intake rates, supply airflow rates and how building factors affect these rates.

Reston Townhouse Projects: Papers related to our airflow and particle measurement study with EPA in an occupied townhouse are starting to be published. The following are/will soon be available:

“Comparison of Measured and Predicted Tracer Gas Concentrations in a Townhouse” – NISTIR 7035.
“Effect of Ventilation Systems and Air Filters on Decay Rates of Particles Produced by Indoor Sources in an Occupied Townhouse” – accepted for publication in *Atmospheric Environment*.
“Effect of Central Fans and In-Duct Filters on Deposition Rates of Ultra-fine and Fine Particles in an Occupied Townhouse” – accepted for publication in *Atmospheric Environment*.
“Concentrations and Source Strengths of Ultra-fine and Fine Particles Due to Cooking in an Occupied Townhouse” – submitted for publication in *Environmental Science & Technology*.
“Measurement and Simulation of the IAQ Impact of Particle Air Cleaners in an Occupied Townhouse”
- NISTIR in preparation.
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HUD projects: NIST is continuing a number of projects funded by the Healthy Homes Initiative and the Office of Policy Development and Research. The current highlights include:

1-Definition of a set of residential buildings that represent the US residential housing stock. A paper on this effort was presented last week in Washington at the AIVC (Air Infiltration and Ventilation Center) conference.

2-The study of airflow and contaminant transport from attached garages in single-family residences. The 1st phase, which consisted of a literature review and field measurements of the air tightness of several attached garages, has been completed and the report is in review. The next phase consists of model simulations.

3-Supporting codes and standards development to meet overall objectives of the Healthy Homes Initiative. To that end, a new standard, *Guide for Specifying and Evaluating Performance of Single Family Attached and Detached Dwellings - Indoor Air Quality* (E-2267), just made it through the ASTM process. The standard has been scheduled for approval and should be published by early 2004.

NIST test facilities: NIST is continuing testing of its new doublewide manufactured test house on the NIST campus. Have established its baseline air tightness and ventilation characteristics, and have developed a CONTAM model of the building. Have been monitoring VOC emissions over its first year in existence. Working on reports on both subjects. Will be conducting studies of mechanical ventilation, air cleaning, and residential moisture issues.

NIST has also just completed renovation of one of its laboratories and has installed a new 30 m³ stainless steel chamber for use as a controlled test environment.

ASHRAE STANDARD 62

With respect to the current Standard 62, the addendum revising the Ventilation Rate Procedure, 62n, was appealed earlier this month and all those appeals were denied. It is therefore now official as far as ASHRAE is concerned. It is being submitted to ANSI (American National Standards Institute) for their approval, which could also be appealed.

The residential version of Standard 62, reference to as 62.2, was also appealed at ASHRAE earlier this month and those appeals were denied. It is also moving on to ANSI for their approval. The 62.2 committee will continue working on a companion guideline and will begin working on various addenda to the Standard. For more information, contact Steven Emmerich at 301-975-6459 or steven.emmerich@nist.gov.

2.2 HUD - Department of Housing & Urban Development, Healthy Homes Activities, by Ellen Taylor. Healthy Homes has updated their *Help Yourself to a Healthy Home* brochure. Contact Ellen (202.755.1785 ext116, ellen_r_taylor@hud.gov) for more information on Healthy Homes Activities.

2.3 CPSC - Consumer Product Safety Commission, by Treye Thomas, Lori Saltzman.

2.3.1-Combustion Appliances. Staff have ongoing activities with Office of Hazard Identification and Reduction (EXHR) / Office of Compliance in evaluating the performance of carbon monoxide (CO) alarms. Reviewing performance of units, alarm response at various CO levels and non-UL 2034 specified alarm mandatory test conditions. CPSC staff is working on a status report on non long-term compliance test results and EXHR dynamic conditions test results.

2.3.2-Generators. Staff has an ongoing project examining (gasoline powered) electrical generators. There is special emphasis on preventing large numbers of CO related deaths. Generators can be a hazard when used as an emergency power source during storms, etc. Performing laboratory tests to evaluate CO emission profile, oxygen depletion, and possibly also hydrocarbon/VOC exposure. The goal is to obtain a technological fix to prevent harmful exposures, e.g., auto cut-off, etc. Staff is participating in the development of a draft UL generator standard, in addition to the CO hazard. Aspects of electrocution and thermal burns are also being reviewed.

2.3.3-Arts and Crafts Safety Booklet. CPSC is collaborating with EPA, Arts and Crafts Material Institute (ACMI), National Art Education Association (NAEA), and Monona Rossol, Author and Safety expert to create an arts and crafts safety booklet on basic hygiene and safety. The booklet is designed to assist artists, teachers, and students in understanding the hazards associated with the use of art materials, and ways to reduce the risk adverse health effects resulting from the use of these products. It discusses the importance of proper ventilation and the use of respirators to minimize exposures to potentially harmful compounds. Collaborators will begin reviewing this document at the end of the year, and should be completed by the Summer of 2004. Please contact Johnathan Midgett at jmidgett@cpsc.gov for more information.

2.3.4-School Safety Booklet. This booklet contains safety procedures to be implemented during ordering, storage, use and disposal of chemicals. It is intended to be used by teachers and students. Portions of the booklet were written by CPSC, EPA (toxics and waste) and NIOSH (workplace safety). The CPSC and NIOSH contributions are now available; the EPA contribution should be available soon. An integrated draft for internal clearances may be available by the end of October, 2003. Contact Patricia Clutton (pclutton@cpsc.gov) for more information. Patricia is also requesting data on the effects of dry erase markers.

2.4 DOE - Department of Energy, by Terry Logee. DOE provided the following summary of recent IAQ technical accomplishments, copies of which were made available as a handout.

2.4.1-ASHRAE Residential Ventilation Standard. The ASHRAE Board of Directors has voted to deny appeals of the new ASHRAE Residential Ventilation Standard, Standard 62.2. Thus, after 6 years of work, ASHRAE has a fully approved residential ventilation standard.

2.4.2-Outside airflow measurement technologies. A first phase of research on technologies for measuring outdoor air flow rates into HVAC systems was completed. LBNL evaluated three recently

introduced technologies for measuring rates of outdoor airflow into HVAC systems. Two of these technologies are quite promising while the third technology had errors exceeding 100%. This research effort is also developing the experience and hardware needed for a standard method for evaluating these technologies. A paper based on this research is available from LBNL and will be submitted to ASHRAE.

2.4.3-Indoor VOC Concentrations and Related Concentration Guidelines. LBNL has completed a pair of papers that should help to focus attention on a modest subset of the hundred-plus VOCs found indoors at measurable concentrations. The first paper provides a review of concentrations found indoors in homes and commercial buildings. The second paper compares the indoor concentrations found in buildings with available thresholds for odor, sensory irritation, and non-cancer chronic health effects. The papers show that only a modest subset of all the VOCs commonly found indoors have concentrations high enough to cause one or more of the sensory or health outcomes.

2.4.4-Structural Insulated Panels. Structural insulated panels (SIPs) can be used to rapidly construct buildings with air-tight envelopes and high R-values. LBNL has completed an initial phase of research on SIPs to quantify the rates at which a range of volatile organic compounds (VOCs) are emitted from SIPs. Using the measured emission rates and a mass balance model, VOC concentrations in SIP-built houses were estimated and compared to odor and irritation thresholds, and to concentrations measured in new conventionally built houses. The calculations indicate that SIPs may significantly degrade IAQ relative to conventional construction.

2.4.5-Productivity of Call-Center Workers. LBNL and its collaborators at the University of California Berkeley have prepared and submitted two journal articles based on their productivity study in a call center. The study results provide some evidence of increased worker performance at higher ventilation rates, but these findings are not conclusive. The study also found a reduction in work speed at the highest indoor temperatures, above 24 °C.

2.4.6-Residential Air Tightness. LBNL has completed an analysis of their database of 70,000 residential air leakage measurements. Based on the analysis, older homes are 20% to 35% more leaky than new homes, and homes with low-income occupants are leakier than homes of occupants with greater income. The envelope leakage also depends on floor area and other factors. The distribution of leakage area is roughly log normal. A regression model was developed for predicting the leakage distribution based on housing characteristics obtained from the U.S Census Bureau.

2.4.7-Infiltration Heat Recovery. In theory, the building envelope acts as a heat exchanger and reduces the loads associated with residential air infiltration; however, the magnitude and importance of infiltration heat recovery (IHR) was unknown. LBNL has used analytical and numerical models to evaluate IHR rates and recently collaborated with a group from Canada in the evaluation of measured IHR data. Based on the analyses, they conclude that the rate of IHR in normal houses with insulated walls is too small to have practical significance.

2.4.8-Special Issues of IAQ Journal Articles. Considerable progress has been made in developing Special Issues of journals based on expanded versions of papers at the Indoor Air 2002 Conference. The topics will be: a) IAQ building science; b) indoor pollutant dynamics; c) indoor bio-aerosols; d) IAQ and health. Conference attendees will receive a copy of each Special Issue.

2.4.9-List of recent IAQ Publications

Apte MG and Fisk WJ (2003) Classroom HVAC: improving ventilation and saving energy: a study design. Lawrence Berkeley National Laboratory Report, LBNL-53844

Bell GC, Sartor D, Mills E (2003) Development and commercialization of an innovative high performance laboratory fume hood – Progress report 1995-2003. Lawrence Berkeley National Laboratory Report. LBNL-48983(REV)

Chan, W.R.; Price, P.N.; Sohn, M.D.; Gadgil, A.J. (2003) Analysis of U.S. residential air leakage database, Lawrence Berkeley National Laboratory Report. LBNL-53367

Faulkner D, Fisk WJ, Sullivan DP, Lee SM (2003) Ventilation efficiencies and thermal comfort results of a desk-edge-mounted task ventilation system. Submitted to Indoor Air. LBNL-53798

Fisk WJ, Faulkner D, Sullivan D, Delp W (2003) Outdoor airflow into HVAC systems: an evaluation of measurement technologies. Lawrence Berkeley National Laboratory Report, LBNL-53834. To be submitted to ASHRAE.

Fisk WJ, Price P, Faulkner D, Sullivan D, DiBartolomeo D, Federspiel C, Liu, G, and Lahiff M (2003) Worker productivity and ventilation rate in a call center: analyses of time-series data for a group of registered nurses. Submitted to Indoor Air. LBNL-53785

Hodgson AT (2003) Volatile organic chemical emissions from structural insulated panel (SIP) materials and implications for indoor air quality, Lawrence Berkeley National Laboratory Report, LBNL-53768.

Hodgson AT, Faulkner D, Sullivan D, DiBartolomeo D, Russell M, and Fisk WJ (2003) Effect of outside air ventilation rate on volatile organic compound concentrations in a call center. Accepted for publication in Atmospheric Environment. LBNL-52497,

Hodgson AT, Shendell D, Fisk WJ and Apte MG (2003) Comparison of predicted and derived measures of volatile organic compounds inside four new re-locatable classrooms. Submitted to Indoor Air. LBNL-52520,

Shendell DG, Prill R, Fisk WJ, Apte MG, Blake D, Faulkner D (2003) Associations between classroom CO₂ concentrations and student attendance. Submitted to Indoor Air. LBNL-53586.

Sherman MH and Matson NE (2003) Reducing indoor residential exposures to outdoor pollutants. Lawrence Berkeley National Laboratory Report, LBNL-51758

Walker, I.S.; Sherman, M.H., Heat Recovery in Building Envelopes, Lawrence Berkeley National Laboratory Report, LBNL 53484.

2.5 Navy - Department of the Navy (DOD), by Trinh Do and Joy Erdman.

2.5.1-The Navy has developed the Mold Remediation Wheel, a handy one-page diagram to help determine appropriate courses of action to prevent mold contamination. Copies of the wheel are available at http://www-nehc.med.navy.mil/IH/images/MR_wheel.gif.

2.5.2-The Navy's Office of Safety & Health (Navosh) NAVOSH Newsletter, with information on Hurricane Isabel, is available at <http://www.navosh.net/docs/public/publicnews/01Oct03pub.htm> and <http://www.navosh.net/docs/comnews/24Sep03com.htm>. For interested viewers, information on obtaining a free electronic subscription to either newsletter is available within each newsletter.

2.6 EPA - Environmental Protection Agency; Indoor Environments Division (IED), by Tom Kelly.

2.6.1-Residential Moisture Study. In 2004 the Indoor Environments Division (IED) will conduct a

two-year exploratory study to determine how active soil depressurization (ASD) systems affect indoor moisture levels. ASD is the mitigation technique typically used to reduce indoor radon levels, and usually very effectively. This exploratory study will initially be based on a selected sample of homes with operating ASD systems.

The study design is also expected to contribute to our understanding the mechanics of soil-building moisture transport. EPA also hopes to better quantify the oft-cited anecdotal information regarding reductions in indoor moisture levels as a consequence of ASD installations for radon control. Planning for the study is underway, with field work scheduled to begin in the Spring, 2004. For more information contact Gene Fisher (202.564.9418, fisher.eugene@epa.gov).

2.6.2-EPA's Radon Risk Re-Assessment (2003). The Agency has updated the estimates of lung cancer risks from indoor radon. The *EPA Assessment of Risks from Radon in Homes* (EPA 402-R-03-003, June 2003) is based on the 1999 National Academy of Sciences (NAS) *Biological Effects of Ionizing Radiation* (BEIR) VI radon report. EPA's updated calculation of a best estimate of annual lung cancer deaths from radon is about 21,000 (with an uncertainty range of 8,000 to 45,000), and is consistent with the estimates of the BEIR VI Report. EPA's previous best estimate of 14,000 annual lung cancer deaths from inhaled radon, was based on the earlier BEIR IV Report (with an uncertainty range of 7,000 to 30,000).

These new estimates will be used to update estimated lung cancer risks from radon in various publications, including *A Citizen's Guide to Radon* (EPA 402-K-02-006, May 2002). On the front page of EPA's radon web site (www.epa.gov/radon), there are a number of key links related to the updated risk assessment. The full text of the *EPA Assessment of Risks from Radon in Homes*, is available at (www.epa.gov/radiation/docs/assessment/radon_in_homes.pdf). For more information contact Anita Schmidt (202.564.9431, schmidt.anita@epa.gov).

2.6.3-Program Needs for Indoor Environments Research Needs (PNIER). The IED Scientific Analysis Team collaborated with other EPA offices in developing an initial draft of *Program Needs for Indoor Environments Research Needs (PNIER)*. This internal-EPA document is intended to capture the indoor environments research needs for EPA offices with program responsibilities related to indoor environmental quality.

Last September, representatives from IED, ORD, and other EPA offices participated in a highly successful Indoor Environments Scientist-to-Scientist meeting. The meeting focused on the *PNIER* draft and how EPA's research needs could be incorporated into the Office of Research and Development's (ORD) work plans. Next steps include, follow-up discussions with other EPA offices on additional research needs, developing and refining priorities, and creating a mechanism to keep the process moving forward. Contact Greg Brunner (202.564.9052, brunner.gregory@epa.gov) for more information.

2.6.4-Tools for Schools Symposium. The Fourth Annual Indoor Air Quality Tools For Schools Symposium will be held October 26-28th at the Grand Hyatt Hotel in Washington, D.C. Acting Deputy Administrator Steve Johnson will present the IAQ Tools for Schools Excellence awards in a gala ceremony on Monday evening (Oct. 27th). The attendance limit of 500 has been met and a waiting list begun. Visit www.epa.gov/iaq/schools/images/symposium_agenda.pdf for more

information, or contact Kim Smith (202.564.9443, smith.kim@epa.gov).

2.6.5-Energy Star and IAQ Labels. On Friday, September 12th, ORIA and OAP briefed Rob Brenner (Deputy Assistant Administrator for Air) on a proposed Indoor Air Quality label for homes. He was very supportive of moving forward with stakeholder review of the proposed specifications. The IAQ label would complement the existing and increasingly popular Energy Star homes label.

Staff from ORIA's Indoor Environments Division and OAP's Climate Protection Division are working together on the project. A significant number of homebuilders have asked for EPA guidance and recognition. This would enable them to build healthy, energy efficient homes and market them to homebuyers interested in energy conservation and a healthy indoor environment. Contact David Price (IED, 202.564.9447, price.david@epa.gov) or Sam Rashkin (OAP, 202.343.9786, rashkin.sam@epa.gov) for more information.

2.6.6-Indoor Air Quality (IAQ) DESIGN Tools for Schools Guidance Released. This new web-based tool contains recommendations to help communities and design professionals integrate good indoor air quality practices into the design, construction, renovation, and operation and maintenance of K-12 school facilities. Practical, cost-effective actions ranging from walk-off entry mats to advanced ventilation systems can reduce contaminants in schools and help protect the health of children and staff. IED is now notifying a wide range of stakeholders, including EPA programs and Regions, states, school and design community organizations, trade press, and others of the availability of the new guidance. Visit www.epa.gov/iaq/schooldesign for more information, or contact Bob Axelrad (202.564.9315, axelrad.bob@epa.gov).

2.6.7-ORD Request: OSHA Contact on nanomaterials needed. Nora Savage is seeking a point-of-contact (POC) at OSHA concerning the potential health implications arising from the use of manufactured or engineered nanomaterials indoors, i.e., in laboratory/research settings and in manufacturing facilities. A facility in Texas is gearing up to mass produce carbon nanotubes and a plant in Japan will produce tons per day of fullerenes or bucky balls. Also, many researchers use engineered nanomaterials in their labs. Although the sizes of ultra-fines are in the nanometer range, typically these types of particles (from combustion and erosion sources) vary widely in size, shape and compositional make-up. Also, they may not be as reactive as manufactured nanomaterials, which will have a certain morphology and are also very reactive. In addition, the relevant exposure route may be dermal, not inhalation as it is with ultra-fines. If you have information pertinent to this request, contact Dr. Savage (202.564.8228, savage.nora@epa.gov); she is affiliated with EPA's National Center for Environmental Research (NCER), within the Office of Research and Development (ORD).

2.6.8-National Lead/Healthy Homes Grantee Conference. Mark Henshall, of EPA's Office of Pollution Prevention and Toxic Substances (OPPTS) provided a handout about the conference, scheduled for June 2004 in Orlando (FL). EPA, HUD and HHS are jointly sponsoring the conference. Mark is EPA's POC for the conference; contact him at 202.566-0523, henshall.mark@epa.gov, or visit <http://urban.csuohio.edu/glefc/nhhgc/> for more information.

2.7 CIAQ Administrative Announcements, by Phil Jalbert (202.564.9431, jalbert.philip@epa.gov)

2.7.1-Changes in Agency POC for CIAQ. Several recent changes in the designated agency points-of-

contact for CIAQ include the following (see the attendees list for available contact information):
Maj. Peter Breed, is the new Air Force (202.767.4317) contact, Major Breed is affiliated with the AF Environmental & Occupational Health Division of the AF Medical Operations Agency.
Trinh Do is with the Navy's NAVFAC (703.723.1943), and replaces Commander Goodwin.
Catherine Shea of the TVA (256.386.2191), replaces Michael Broder.
Peter Wixted, of the Commerce Department (DOC) (202.482.3444); replaced Anjou Fritz.

2.7.2-EPA Relocation. This is the last CIAQ Meeting at Judiciary Square. In mid-November, EPA's Judiciary Square staff will relocate to new offices at 1310 L Street, N.W., Washington, DC. 20005-4113. The January 21st 2004 CIAQ meeting will likely be held at this location. The Indoor Environments Division's (IED) official mail stop (6609-J) and mailing address is unchanged (1200 Pennsylvania Avenue, N.W., Washington, DC 20460-0001). The new IED main phone number will be 202.343.9370.

2.7.3-Change the date and time of the CIAQ meeting(?). EPA is soliciting the opinion of CIAQ members (and any others with an interest) about possibly changing the date and start time of future CIAQ meetings. The request is prompted in part by IED's office move (above).

2.7.4-CIAQ Website. Phil Jalbert invited those present to submit notices about upcoming conferences and meetings on IAQ and IEQ for posting to that page of the website.

2.7.5-Please Notify the CIAQ of Email Changes. Phil Jalbert reminded attendees to notify him of changes in their email addresses, given that web/email are the primary communication channels for CIAQ related information, etc. Send Phil your email to be added to the distribution list.

3-Pesentation: ORD's IAQ Research Program. Jim Jetter of EPA's Office of Research and Development's (ORD) outlined and discussed the IAQ Research Program. Jim is affiliated with the Air Pollution Prevention and Control Division, within the National Risk Management Research Laboratory (NRMRL), located in Research Triangle Park (NC).

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4-CIAQ Attendees for Wednesday, October 22nd 2003

Adams, John	Greenguard	404.455.0771	jadams@greenguard.org
Anderson, Robin	EPA/ORIA/IED	202.343.9385	anderson.robin@epa.gov
Blanford, Mike	HUD/PATH	202.708.4370	michael_d_blanford@hud.gov
Butler, Helga	EPA/ORIA/IED	202.342.9370	butler.helga@epa.gov
Cooper, Linda	NASA	202.358.0737	lcooper@hq.nasa.gov
Do, Trinh	Navy	703.723.1943	ntdo@ureach.com
Donnay, Albert	MCS Referral&Resources	410.889.6666	adonnay@mcsrr.org
Erdman, Joy	Navy/S&OH	703.602.2575	joy.erdman@navy.mil
Fitzpatrick, John	HUD	202.708.0614x5602	john_e_fitzpatrick@hud.gov
Hallman, Nelson	EPA/EASI	202.329.9601	hallman.nelson@epa.gov
Hawkins, Monica	EPA/OPP	703.305.6459	hawkins.monica@epa.gov
Jalbert, Philip	EPA/ORIA/IED	202.343.9431	jalbert.philip@epa.gov
Jetter, Jim	EPA/ORD/IEMB	919.541.4830	jetter.jim@epa.gov
Kelly, Tom	EPA/ORIA/IED	202.343.9370	kelly.tom@epa.gov
Miro, Chuck	ASHRAE	202.833.1830	cmiro@ashrae.org
Patkowski, Chris	EPA/ORIA/IED	202.343.9016	patkowski.christopher@epa.gov
Purzycki, Len	GSA	215.446.4643	len.purzycki@gsa
Reed, Cindy	NIST	301.975.8423	chreed@nist.gov
Ritchey, David	ASBO	703.708.7069	dritchey@asbintl.org
Rosenblum, Ian	DOI	202.208.5795	ian_m_rosenblum@nbc.gov
Sauer, Steve	IE Connections	301.230.9606x17	IECnews@aol.com
Savage, Nora	EPA	202.343.8228	savage.nora@epa.gov
Steverson, Bryan	GSA	202.501.6115	bryan.steverson@epa.gov
Taylor, Ellen	HUD/OHHLHC	202.755.1785x116	ellen_r_taylor@hud.gov
Thomas, Treye	CPSC	301.504.7738	tthomas@cpsc.gov
Wysocki, Joseph	USDA/CSREES	202.401.4980/1706fax 202.755.1000	jwysocki@csrees.usda.gov

NOTE: EPA's telephone prefix will change to 343 from 564 effective Monday, November 17th, 2003, when elements of the Office of Air and Radiation (OAR) relocate to new office space at 1310 L Street, NW, Washington, D.C.; see item 2.7.2 for more information.

Changes in Department and Agency Points-of-Contact for CIAQ.

AF Maj. Peter Breed, is the new Air Force (202.767.4317) contact, Major Breed is affiliated with the AF Environmental & Occupational Health Division of the AF Medical Operations Agency.

Navy Trinh Do is with the Navy's NAVFAC (703.723.1943), and replaces Commander Goodwin.

TVA Catherine Shea of the TVA (256.386.2191), replaces Michael Broder.

DOC Peter Wixted, of the Commerce Department (DOC) (202.482.3444); replaced Anjou Fritz.